



Air Pollution Control Division

Small Business Assistance Program

A Guide to Environmental Regulations for: Printing & Imaging Facilities

Printing and imaging businesses in Colorado are subject to a variety of air, waste, and water regulations. This document provides an overview of the environmental requirements that may apply to your printing and imaging business.

➤ AIR REQUIREMENTS

While many printers are small facilities, they all emit air pollution and may need to comply with Colorado's air pollution control and permitting regulations. Printers may emit the following types of air pollutants:

- Volatile Organic Compounds (VOCs),
- Hazardous Air Pollutants (HAPs),
- Particulate Matter (PM),
- Nitrogen Oxides (NO_x), and
- Sulfur Oxides (SO_x).

Most VOCs and HAPs generally come from printing inks (including inkjet applications), cleaning solutions, fountain solution additives, blanket and roller washes, coatings, and adhesives. Solutions with high VOC content and high vapor pressure evaporate quickly at room temperature, resulting in increased air emissions and greater material consumption. PM generally is paper dust from cutting, folding, and binding operations. NO_x and SO_x are generated from fuel burning boilers, generators, press dryers, and some control equipment (such as oxidizers).

Operators of printing & imaging facilities are required to submit an Air Pollutant Emission Notice (APEN) to the Colorado Department of Public Health and Environment (CDPHE) Air Pollution Control Division if emissions exceed the reporting thresholds presented in Attachment A. An Air Pollutant Emission Notice (APEN) is a form used to report a facility's emissions. If the permitting thresholds are exceeded in Attachment A, the source must obtain a permit from the Air Pollution Control Division (APCD) prior to construction or operation of the unit.

To determine if air emission reporting or permitting requirements apply to your facility, you must develop an inventory of the types and amounts of air pollution emissions from products and equipment such as inks, coatings, washes, adhesives, press cleaning solutions, generators, boilers, and other fuel combustion equipment. You do not have to include products for incidental use, such as janitorial products. Film and plate chemistry may have to be included depending on the type and quantities used.

A guidance document is available from the Division to show you how to calculate VOC and HAP emissions for your business. The guidance document is downloadable at www.colorado.gov/pacific/sites/default/files/AP_A-Simple-Guide-to-Calculating-Your-VOC-and-HAP.pdf. You may use VOC and HAP reports provided by your supplier, emission calculation spreadsheets, or annual purchase information with a safety data sheet (SDS) to calculate emissions.

❖ Submitting an Air Pollutant Emission Notice (APEN):

The “*Print Shop Air Pollutant Emission Notice*”, is used to report information about your printing and imaging operations, including the type of printing process, control technology used to reduce emissions, and the resulting emissions. The Print Shop APEN form can be downloaded online under Construction Permit Forms and APENs at: www.colorado.gov/pacific/sites/default/files/AP_APEN-Print-Shop.pdf

Certain categories of sources are exempt from APEN requirements because the emissions from those sources are considered to have very little impact on air quality. Exempt sources are listed in Regulation 3, Part A, Section II.D. If you are not certain whether a source at your shop is exempt, contact the Small Business Assistance Program.

An APEN is valid for five years and must be renewed at least 30 days before it expires. The appropriate APEN fee must be submitted with the APEN form or the form will be returned to you.

If your business has reportable HAPs, you also need to complete the form titled, “APEN Addendum for Non-Criteria Reportable Pollutants (HAPs)”. The form is available from the Division and downloadable at www.colorado.gov/pacific/sites/default/files/AP_Addendum-NCRP.pdf

You must submit a **revised APEN** to notify the Division when certain changes occur at your facility such as a name change, a change in ownership, a change in the business location, or a significant change in emissions.

❖ Obtaining an Air Permit

Air emissions at your shop may trigger the need for an air pollution permit (Called a "Construction Permit") due to the level of air pollutants emitted. In Colorado, a Construction Permit is required before you begin construction of a new source or modification of an existing source. Permit reporting thresholds are listed in Regulation No.3, Section II.D.3 and in Attachment A. As with submitting APENs, some sources are exempt from obtaining permits.

The Division will use the information provided in your APEN to determine the terms and conditions of your air permit. Your air permit lists the specific equipment subject to the permit, limits the annual production at the site, and includes recordkeeping and reporting requirements.

Sources of non-criteria pollutants (HAPs) typically do not require an emission permit unless:

- The source emitting a non-criteria pollutant is also a volatile organic compound or a particulate that exceeds the thresholds listed above, or
- The source emits a federally regulated non-criteria pollutant (i.e., designated as "HAP" in Regulation No.3, Appendix B) that is subject to an EPA MACT Standard. If you have questions about HAPs or MACT standards that may apply to your business contact the SBAP.

In Colorado, Construction Permits are issued in two phases: "Issuance 1" and "Final Approval to Operate".

- Issuance 1 of a permit allows the plant to be constructed and begin operation. The source must self-certify to Issuance 1 of the permit once in operation within 180 days of receiving the first issued permit.
- After the owner certifies that the operation is in compliance with the conditions of Issuance 1 of the permit, the Division issues a "Final Approval to Operate" letter to operate under the conditions of Construction Permit Issuance 1. This letter confirms the completion of the self-certification requirements of that permit. The source is issued an invoice for processing time for this letter, and must pay the invoice within 30 days of receipt. Please note that if the permit processing fee is not paid within 30 days of receipt, you will be in violation of your permit conditions and may result in revocation of the permit.
- If the source modifies an existing permit, the source will be issued Construction Permit Issuance 2 (Issuance number determined by modification sequence). The source may have to self-certify to the new Issuance if required by the permit.

A permit describes key areas that an operator needs to address. The permit defines the type of air pollution control measures to be used, limits the annual

production at the site, provides guidelines for opacity (how dense the visible emissions are allowed to be), and includes recordkeeping requirements.

More information on the air permitting process can be found in the guidance document, "Reporting Your Air Emissions and Applying for Air Permits Step-by-Step for Colorado Small Businesses." This document is available through the Division and downloadable at www.colorado.gov/pacific/sites/default/files/AP_Air-Permits-Step-By-Step.pdf

❖ Air Permit Requirements

- **Recordkeeping:** Print shops are required to maintain emission records for VOC, HAPs, or other air pollutants as specified in the air permit. These records must be available to the Division for inspection upon request. Your print shop should maintain a copy of the most recent APEN, air permit, and other documents if required by your air permit. The air permit number must be permanently affixed on each piece of permitted equipment.
- **Boilers:** Process boilers that use only gaseous fuel with a maximum heat input capacity of 5 MMBtu/hour are exempt from APEN requirements (Regulation No. 3, Part A, Section II.D.l.k). Boilers that use only gaseous fuel, with a maximum heat input capacity of 10 MMBtu/hour, which are used solely for heating buildings for personal comfort are exempt from APEN requirements (Regulation No.3, Part A, Section IID. l.ggg). In addition, select small boilers that were constructed, reconstructed, or modified after June 9, 1989 are subject to specific federal requirements called New Source Performance Standards (NSPS), Subpart Dc. For more information on boilers and the NSPS requirements, guidance documents are available from the Division and downloadable at www.colorado.gov/pacific/cdphe/business-specific-guidance-a-to-g
- **Generators:** Emergency power generators are typically exempt from APEN or permit requirements if they are operated only during emergencies and for maintenance purposes. For example, emergency power generators that have a rated horsepower of less than 260, or operate no more than 250 hours per year and have a rated horsepower of less than 737, or operate no more than 100 hours per year and have a rated horsepower of less than 1840 are exempt from APEN reporting requirements (Regulation No. 3, Part A, Section II.D.1.ttt.). For air permitting purposes, emergency power generators that operate no more than 250 hours per year, or have uncontrolled actual emissions of less than 10 tons per year or a manufacturer's site-rated horsepower of less than one hundred are exempt from air permit requirements (Regulation No. 3, Part B, Section II.D.l.c.). For more information on emergency generators, contact the Small Business Assistance Program.

✓ What Fees Apply?

Filing Fee: A filing fee is required for each APEN submitted. This includes APENs submitted for administrative changes (e.g., change in ownership, change in location). Fees are subject to change by the legislature on an annual basis.

Annual Fee: All sources required to file APENs must pay annual fees. The Division bills each source subject to an APEN filing fee per ton of criteria pollutants emitted and per ton of non-criteria (hazardous air pollutants) emitted. The Division mails invoices for these fees in May or June of each year (these fees account for the emissions from the previous year's operation). Fees are subject to change by the legislature on an annual basis.

Permit Processing Fee: In addition to the APEN filing fee, permit-processing fees will be assessed at an hourly rate. If the total processing time is anticipated to be more than 30 hours the Division will contact the applicant in writing and provide an estimate of the projected processing time. The applicant can waive this notice by submitting a letter making this request when the application is submitted.

Current fee information is available online at:

www.colorado.gov/pacific/cdphe/emissions-and-permitting-fees

➤ HAZARDOUS WASTE REQUIREMENTS

Printing and imaging operations typically generate waste such as cleaning solutions, coatings, adhesives, and some waste ink that may be subject to hazardous waste regulations implemented by the CDPHE Hazardous Materials and Waste Management Division (HMWMD). It is important to identify your hazardous waste and know where your waste is going and that it is properly handled and disposed of safely. Hazardous waste management requirements vary depending on the amount of hazardous waste generated at your facility each calendar month. The more hazardous waste that you generate, the more storage and disposal requirements apply. In all cases, you must identify all of the hazardous wastes that you generate and ensure that they are managed and disposed of properly. The generator is ultimately responsible for the waste from "cradle to grave" and can be held liable for improper management of hazardous waste even though it may have been sent to a "proper" hazardous waste management facility using a licensed transporter.

Although you generally will not need to obtain a permit to manage your hazardous wastes, you must notify the Hazardous Materials and Waste Management Division of your hazardous waste management activities if you generate more than about 25 gallons of hazardous waste per calendar month. Information on hazardous waste notification, fees, and the downloadable notification form titled, *"Notification of Regulated Waste Activity"* form is

available from the Division at www.colorado.gov/pacific/sites/default/files/HM_hwform-notification.pdf. Once you have completed the notification form, your facility will be issued an EPA identification number unique to your facility. This number is not a permit. It is a means of identifying your facility for hazardous waste management purposes. More information on hazardous waste regulations, guidance on the hazardous waste requirements, and downloadable forms are available at www.colorado.gov/pacific/cdphe/hm

➤ WATER REQUIREMENTS

❖ WASTEWATER

Typically, the primary wastewater issues printers face concerns discharges of industrial wastewater contaminated with silver, water-based inks, or fountain solutions. The CDPHE Water Quality Control Division (WQCD) regulates discharge of pollutants into the state's surface and ground waters. Wastewater discharge regulations require your facility to meet specific limits for silver and other constituents identified by your local pretreatment facility (POTW or "publicly owned treatment works"). Untreated spent fixer from tray development or automated photo processors can contain 1500 to 5000 parts per million of silver. Though silver is by far the most common metal found in printers' wastewater, other metals could potentially be introduced to the facility's wastewater process (e.g., from certain types of inks or used oils). Other frequent contaminants for printers include chromium, copper, zinc, formaldehyde, and toxic organic chemicals.

Your local pretreatment facility will establish allowable concentrations for silver and other heavy metals. Check with your local pretreatment facility before you discharge any wastewater to the sanitary sewer. For more information on pre-treatment facilities visit: www.colorado.gov/pacific/cdphe/wq-pretreatment

Industrial process waste (including photochemical, cleaning solutions, waste inks, fountain solutions, or water contaminated with any of these) may be discharged to the municipal sewer system with prior notification to your local pretreatment facility. Industrial process waste cannot be discharged to a septic tank or other onsite sewage disposal system. In addition, if your business discharges wastewater to surface waters (e.g., rivers, lakes, and streams), you are required to obtain a Colorado Pollutant Discharge Elimination System (CPDES) permit. Contact the WQCD if you have questions about this permit.

- **Good Management Practices (GMP's)**
 - No wastewater should be disposed of through the outside drains around the building or in the parking lot.

- No chemicals should be dumped from containers or buckets into sinks or floor drains. Containers of used solutions, including waste inks, solvents, lubricants, cleaners, or oils should be disposed of properly via an appropriately designated container as specified under the facility's solid waste handling procedures.
- Facility sinks are to be used primarily for hand washing only.
- Any parts required to be washed in the sinks should be allowed to drip dry from any cleaners, solvents, or other chemicals before they are rinsed in the sink.
- In the event of a spill of any kind of chemical material, efforts should be made to prevent the chemical from reaching the floor drains by using absorbent spill containment booms ("pigs") and drying agents.
- In the event a spill reaches the septic system, the facility should call the CDPHE WQCD.
- In the event a spill reaches drains connected to the sewer system, call your local pretreatment facility.

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- **Silver Recovery Systems (SRU)**

If photo processing wastewater is to be discharged to the municipal sewer system, all silverbearing wastes, including fixer, bleach-fix, stabilizers from washless systems and low flow wash water, but not including developer, and bleach, must pass through and be treated by a properly designed and operated silver recovery unit (SRU). Rinse waters may not have to be treated with a SRU dependent on the silver concentration, and whether it passes the silver discharge limits. SRU's must be operated and maintained according to manufacturer's specifications. Records must be kept to show the SRU's are properly operated and maintained.

There are several types of SRU's. The most common are electrolytic, metallic replacement cartridges (steel wool canisters), and ion exchange units. They may be used separately or in combination, but an electrolytic unit alone may be insufficient. If you use an electrolytic unit, it may need to be used in conjunction with a second stage, or second and third stage, system. Equipment maintenance is the key to properly operating SRU's. To meet silver discharge limits you should:

- Perform inspections and regular maintenance of SRU's;

- Sample and test the SRU effluent periodically to ensure that the effluent meets discharge limits;
 - Mark the date on your cartridges/canisters when you install them;
 - Replace cartridges when they no longer remove silver efficiently; and
 - Keep a log of your cartridge installation and replacement dates;
 - Back flush all metallic replacement units at least three times into another unit to remove silver-laden solution and allow the unit to be shipped as non-hazardous waste.
- **Sampling Requirements**

Your local pretreatment facility may require you to conduct periodic sampling for various chemicals. Contact your local authority to find out your specific requirements. If you are using a Silver Recovery Unit (SRU), you must test the effluent from the SRU to ensure that it is working effectively. The appropriate sampling frequency will be specified by your local pretreatment facility. If the analysis shows that your treatment equipment is not effectively removing silver, you must take steps immediately to prevent inadvertent discharge of silver contaminated effluent and repair or replace the equipment.

The essential step in satisfying silver (and other heavy metals) environmental requirements are to know your local pretreatment facility's restrictions and monitor your discharge to ensure you are in compliance with these requirements.

❖ STORMWATER

Rain or snow falling on your property can pick up contaminants from your shop and carry the contaminants through the drainage systems directly into streams, rivers, and lakes. The term "stormwater" refers to this type of runoff.

Stormwater management and spill prevention go hand-in-hand. The aim of both is to prevent contaminants from industrial operations from being washed into the environment along with stormwater run-off. The WQCD requires certain industrial facilities that may discharge stormwater directly to surface waters or indirectly through drainage systems to obtain a stormwater permit or a No Exposure Exclusion as discussed below. Printing and Imaging facilities that fall under Standard Industrial Classification (SIC) major Group 27, are included in the definition of industrial facilities requiring stormwater coverage.

A complete list of regulated industrial activities can be found in the Storm water guidance available from the Division at www.colorado.gov/pacific/cdphe/clean-water-commerce-and-industry-compliance-assistance-and-guidance. EPA also has a stormwater guidance specific to the printing industry available at: water.epa.gov/polwaste/npdes/stormwater/upload/sector_x_printingpublishing.pdf.

Stormwater Discharge Permits require facilities to develop and implement a Stormwater Management Plan (SWMP) to control stormwater discharges from their facility. The plan includes Best Management Practices (BMPs) that may include treatment of stormwater discharges along with source reduction. The permit application and SWMP guidance are available from the Division at www.colorado.gov/pacific/cdphe/clean-water-commerce-and-industry-permitting and www.colorado.gov/pacific/cdphe/clean-water-commerce-and-industry-compliance-assistance-and-guidance respectively.

Your print shop may be able to complete a form titled, "No Exposure Certification for Exclusion from CDPS Storm water Permitting", if industrial activities and materials at your printing facility are completely sheltered from exposure to storm water. If your facility qualifies for a No Exposure Exclusion, separate stormwater permit coverage is not required. Information about exclusions and a downloadable form is available from the Division at www.colorado.gov/pacific/sites/default/files/noexposure%20app.pdf

The simplest way to avoid stormwater contamination is to keep all chemical and waste storage and dispensing indoors and contained within the building or within a protected shelter. Caution must be exercised around loading docks and parking lots where materials are moved between vehicles and the print shop. Whenever possible, such areas should be covered. Dumpsters should remain closed or be covered or brought inside. All material transfer should take

place over an impervious (paved) surface. Basic precautions are fundamental to reducing the risk of spills. Spill control and clean up supplies should be kept available near these areas in case of a spill. If your shop stores chemicals or wastes outside, the containers should be placed on an impervious surface and provided with containment (typically a concrete berm) that will contain at least the volume of the largest container plus an allowance for rainfall. For more information on stormwater requirements, contact the Water Quality Control Division (WQCD).

➤ TIPS FOR ENVIRONMENTAL SUCCESS

These alternative products also experience less evaporation loss~ saving money on the purchase of new products.

Film processing typical to many printers also generates silver contaminated wastewater. Untreated spent fixer is considered a hazardous waste so, it is important that each business does its part to keep these wastes out of the ground and water.

- **Pollution Prevention (P2) PAYS.**
The less waste you generate, the less you are regulated. Save money and protect your health, your employees' health, and our environment by switching to low VOC inks, cleanup and fountain solutions.
- **Don't throw it in the dumpster.**
Never handle hazardous waste like regular trash. Accumulate waste in properly labeled appropriate containers and properly dispose. Look for ways to recycle scrap film, used plates, corrugated cardboard, and other solid wastes.
- **Don't use shop towels for waste disposal.**
Minimize the amount of solvent and inks on shop towels so you can ship them to a qualified laundry service instead of managing them as hazardous waste. Remove excess ink from surfaces or equipment with a scraper or spatula before wiping with a shop towel. Save as much ink as you can by putting it back into its original container.
- **Don't use "F-Listed" or other hazardous solvents.**
These are solvents that the Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment consider dangerous when they're disposed. Work with your supplier to try alternatives. Also, ask for alternatives to high vapor pressure solvents, solvents with low vapor pressure (<10mm Hg at 68 degrees F), and those with flash points above 140 degrees F.

- **Fix your fixer.**

Untreated spent fixer is very likely to be a hazardous waste and exceed local sewer discharge limits for silver. You may be able to do on-site reclamation, or use an off-site collection service. If you decide to reclaim on-site, use an appropriate silver recovery system and maintain the units properly. Test the discharge water regularly for compliance with sewer discharge limits.

- **Be aware of fire hazards.**

Don't store solvents or used shop towels near dryers or other heat or ignition sources. Keep used towels in closed containers. Enforce a "No Smoking" policy near storage areas. Always ground large containers of flammables and use a bonding wire to control static buildup/sparks when dispensing or adding material.

- **Label waste containers and put them in one spot.**

Choose one area to store wastes and label each container. For example, "Waste Ink Only", "Press Wash Only", "Used Shop Towels Only", "Used Fixer Only", and "Scrap Film Only". All hazardous waste must be labeled "Hazardous Waste." Be sure to separate your waste storage area from your product storage area and post a sign designating "Hazardous Waste Storage Area".

- **Learn how to read Safety Data Sheets (SDS).**

SDS's should come with all products, providing key environmental, health and work place safety information. Remember you must keep current copies of SDS's for all chemicals in your shop.

- **Keep records.**

Keep purchase records for products and bill of lading, manifests and land disposal restriction forms every time you buy materials or dispose of waste. Good records, kept in order, by year, will help you keep better track of material use and waste management. Good records can expedite a property sale or loan.

- **Ask for help.**

Environmental regulations were created to protect you and your workers, and they're here to stay! Don't be afraid to use the Small Business Assistance Program as a resource. They are available to help you understand the regulations. Show your customers and employees that you are taking the extra step to make your work place and the environment better.

➤ **HELP IS AVAILABLE**

The air, water, and waste environmental programs at CDPHE work together to provide free services to small businesses seeking help in understanding and complying with air, hazardous waste, and other environmental regulations. If you have questions or concerns on environmental issues, contact the resources listed below:

Small Business Assistance Program:

- www.colorado.gov/pacific/cdphe/small-business-assistance-program-sbap
- (303) 692-3175 or (303) 692-3148

Hazardous and Solid Waste Management:

- Generator Assistance Program (GAP)- 888-569-1831, ext. 3415
- Technical Assistance Hotline - (303) 692-3320
- www.colorado.gov/pacific/cdphe/hm

Wastewater and Stormwater Permitting:

- Water Quality Control Division - (303) 692-3500
- www.colorado.gov/cdphe/wgcd

ATTACHMENT A

APEN REPORTING THRESHOLDS		
Pollutant Category	Uncontrolled Actual Emissions	
	Attainment Area	Non-attainment Area
Criteria Pollutants	2 tons per year	1 ton per year
Lead	100 pounds per year	100 pounds per year
Non-Criteria Pollutants ¹	≥ 250 pounds per year of any individual non-criteria reportable pollutant	≥ 250 pounds per year of any individual non-criteria reportable pollutant

AIR PERMITTING THRESHOLDS		
Pollutant Category	Uncontrolled Actual Emissions	
	Attainment Area (tons per year)	Non-attainment Area (tons per year)
PM-10	5	1
Total suspended particulates	10	5
Volatile organic compounds	5	2
Carbon monoxide	10	5
Sulfur dioxide	10	5
Nitrogen oxides	10	5
Lead	200 pounds per year	200 pounds per year
Other criteria pollutants: fluorides, sulfuric acid mist, hydrogen sulfide, total reduced sulfur, reduced sulfur compounds.	2	2